

## **ABSTRACT**

A bi-directional wavelength division multiplexed (WDM) optical communications network that includes components for automatically detecting a fault along a primary optical waveguide in a link forming part of a bi-directional WDM communication network and switching the transmission path of the optical signals propagated along that link from that waveguide to a second standby waveguide whenever a fault is detected in the first waveguide using 1x2 optical switches, optical filters, photodetectors and electronics in a configuration designed to avoid silent event failures. Replacing the 1x2 optical switches with 2x2 optical switches in conjunction with other equipment can allow either the constant monitoring of the standby waveguide, provide back up for optical transmitters, receivers and couplers on the path containing the primary waveguide and/or allow carriage of low priority traffic on the standby waveguide as long as it is in standby mode. No handshaking mechanism is required between the opposite ends of the waveguides for the switchover protection.